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ABSTRACT

One of 10 publications from a long-range vocational education planning project, this planning model is a boiled-down version of the complete computer based system presented in "Policy Information System Computer Program." It has been reduced to 50 pages of step-by-step procedures and fill-in-the-blank forms for use in teaching an administration the entire planning process of projecting the need, supply, and cost of vocational education programs offered by a single district or agency. Only a single method for estimating each set of projected figures in this planning process is contained in this model. The components covered are base enrollment projections, student interest, labor market demand, program enrollment, program teaching staff requirements, instructional staff costs, program capital costs, and program consumables costs. The model is designed to operate in 1-year increments to a maximum of five years, and the provision is made for combining the component summaries to obtain a unified view of the program outlook. (If alternative methods of projecting costs are desired, the related documents are recommended.) (BL)

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PRELIMINARY LONG-RANGE PLANNING MODEL

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PRELIMINARY LONG-RANGE PLANNING MODEL

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ACKNOWLEDGMENT

The preparation of this report was a team effort of the staff of the Long-Range Vocational Education Planning Project of the Middle Cities Education Association. Ideas and information were gleaned from numerous sources by everyone involved and then synthesized at regular staff meetings before finally being assimilated by those principally responsible for the completion of particular chapters or sections. The various authors and their more specific responsibilities in the preparation of the publication are described below.

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Paul J. Kriz, Ph.D. was a researcher with the project, and has academic and professional training in industrial education and educational administration. Occupational experience includes teaching industrial and commercial subjects at the secondary level, and administrative and technical direction of vocational-technical state projects in Wisconsin. Dr. Kriz's primary contribution to this report was in the drafting of Tabs VI, VII, and VIII.

Donald Hanna is a member of the faculty of the College of Engineering at Michigan State University. His background includes several

years of teaching and administration in secondary and continuing education in both domestic and foreign settings. With respect to that part of the project represented in this document, Mr. Hanna was principally responsible for the writing of Tab II.

Clifford Jump, Ph.D., is currently the Director of Agricultural Vocational Technical Education Division at Michigan State University. During most of the duration of the Long-Range Vocational Education Planning Project, he was the Coordinator of a Career Education Planning District and Director of the Calhoun Area Skill Center in Battle Creek, Michigan. Previous background includes several years as school system principal and superintendent. As a field intern, Dr. Jump was responsible for testing this product in one school system.

John R. Martin, Ph.D., was a project field intern with professional and academic training in technical education, social science, guidance counseling and educational administration. Career experiences include Director of Student Placement of the Flint Community Schools, vocational service coordinator, and client guidance services at the secondary level. Project contributions were in the area of vocational placement and community follow-up activities. Dr. Martin was responsible for testing this product in one school system.

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Richard Featherstone, Ph.D., is a professor of Michigan State University with a long-standing interest and expertise in the planning of education systems. He has been a research fellow at the ECHIMS and is the former chairman of the Department of Administration and Higher Education in the College of Education at Michigan State University. He spent many years as the chief administrative officer of urban school systems before becoming a professor. Dr. Featherstone acted as a faculty consultant to the project throughout its eighteen-

month duration and served to educate all involved to the theory and practice of education planning while making specific contributions to several of the project products.

Other members of the project team who played important roles in the formulation of all aspects of the project include the following. David Unnewehr, a graduate research assistant with academic and professional experience in planning and journalism contributed to the editing of nearly all project products. Stephany Tornatzky, a graduate research assistant with academic emphasis in education and organizational communications, concentrated on the community input to vocational planning. Judy K. Pfaff, research assistant with educational background in systems science, mathematics and educational psychology, was a computer programming specialist for the project. Thomas E. Johnston, a research assistant with academic background in labor relations, economics and social science and supervisory experience in industry, focused on the concern of the unemployed and underemployed. Jeffrey Crause, a graduate student in the School of Urban Planning studied labor market boundaries. Albert Lynd, Ph.D., played an important research role with respect to planning for vocational personnel. Donald Hanna, an instructor with the College of Engineering, worked on the projection of enrollments and student program interests and Scott Ramsey, a graduate student with background in urban geography was a computer programmer with the project.

An important component of the success of all aspects of the project was the competent management of clerical work, bookkeeping, and office administration by Mary Guile.

INTRODUCTION

The Preliminary Planning Model is designed to provide the vocational education administrator or planner with a preliminary method of projecting the need, supply and cost of vocational education programs offered by a single district or agency. The model operates in one-year increments to a maximum of five years. Each critical program component is separately identified and a single method is used to estimate each component. The components are then combined to obtain a unified view of the program outlook.

It is generally acknowledged that the projection of any component is not an easy task and difficulties may be encountered with any single method. Therefore, several related documents are suggested in order to furnish alternatives where they may be desired. Where only a shorter time period is (one-year) is emphasized, the Summary Planning Program offers a more concise technique of obtaining year-by-year projections.

Where alternative methods are desired but the overall objectives remain the same, the Long-Range Policy Information System provides a more extensive set of projection techniques with the same basic model. Specific elements are identified for use with the Vocational Education Data-Element Dictionary, which lays the basic for using the model as a computer - based management information system. This will allow the planner to create the basis for the continuous management and evaluation of programs.

Where the planner desires additional research into the planning process, the monograph Planning for Vocation Education has been compiled. This work offers further insight into the vocational education planning

process within the same general framework, but with a broader outlook. A related document, The Implementation of Long-Range Planning for Vocational Education, contains the case studies of the implementation of this model in three Michigan cities. These studies detail the strategies used and the combined experiences and learning gained in the process of initiating vocational education planning at the local level.

Although planning is not an easy task, it is hoped that planners do not become discouraged in attempting to develop information sources and will work through the process. The manual is intended to serve and guide, but not to restrict the process to a single approach. It should serve to stimulate efforts in overcoming difficulties and make planning an integral part of education administration.

The Preliminary Planning Model is divided into two parts, each with several steps or TABS. The first part uses existing programs, student interest and skill-related placement (job demand) to establish target programs. Each of these elements constitutes on TAB. The second part takes the target programs as a base for estimating future program costs. This is broken down into teaching staff required, teaching staff costs, capital outlay and consumables cost, each of which is a separate TAB.

To begin the process, the planner is advised to read through the introduction, definitions and data required for each TAB before beginning to work through the model. By becoming aware of data requirements, costly delasy in obtaining data may be avoided and the whole process may be accomplished in a more orderly and convenient manner.

The data entry sheets of each TAB are based around the concept of the planning year. That is, the model proceeds by one-year increments. The data entry sheets should be removed and duplicated for each planning year, with each year's projections based on the data from the preceding year. Each data entry sheet contains space for 20 programs. The sheets for each planning year will also need to be duplicated where more than 20 programs are to be included. Note that at the top of each data entry sheet there is a place for the planning year. These should be clearly labeled to avoid confusion.

PART ONE

Part One of the Preliminary Planning Model creates a set of enrollment projections for individual vocational programs using the factors of total enrollment, student interest and labor market demand. Each of the factors is arrived at by a separate projection, and the value or weighting of each is left to the determination of the local administrator; there is no one single "best" formula.

TAB ONE
TOTAL STUDENT ENROLLMENT PROJECTION

INTRODUCTION

In order to provide a base for estimating the number of students available for vocational enrollment, this tab is designed to project the total school district enrollment of the 11th and 12th grades for up to five years. The method employed is called the cohort survival method, which relies on the number of students moving up to the next grade each year. The method can be quite accurate and is widely used in planning activities. It involves calculating the rate at which the number of students changes as that "cohort" or age-group moves through the grades. Since the number of entrants to each grade is known, the accuracy of the projection is limited only by the accuracy of the survival ratio.

DEFINITIONS

1. *Enrollment* - the total number of students enrolled in each grade for that academic year.
2. *Survival rate* - the percent of students moving from one grade to the next each year. For example, if the 10th grade contains 1000 students in 1975 and there are 950 students enrolled in 11th grade in 1976, then the *survival rate* for the 1976 11th grade is 95 percent.
3. *Average survival ratio* - the average of survival rates for each grade across a number of years. This is the figure that is used to estimate future survival from one grade to the next.

   Example: your data indicate that the *survival rates* for the 11th grade are:

1970	1971	1972	1973	1974	1975
.95	.96	.95	.93	.97	.94

the *average survival ratio* is 95 percent or .95

DATA REQUIRED

1. Enrollment by grade (K-12) for the past six years.

PROCESSING STEPS

1. PLACE THE ENROLLMENT FIGURES IN THE APPROPRIATE BOXES ON THE DATA ENTRY SHEET. *The years of enrollment should be indicated at the top of each column.*

2. CALCULATE THE SURVIVAL RATE FOR EACH GRADE IN EACH YEAR. *Note that for the first year of your data, there are no survival rates. Place the survival rate in the lower section of the box for that grade.*

Example:

grade	1974	1975
7th	1000	1050
*	-	.97
8th	930	950
*	-	.95

Note that each survival rate is listed in the table under the numerator, thus the .95 is the survival rate for the 1975 8th grade class. The .97 is derived from the 1974 6th grade class which is not listed in the example.

3. AVERAGE THE SURVIVAL RATES FOR EACH CLASS (ACROSS THE ROWS). *Place that figure in the survival rate box for each future year. This becomes the survival rate for that year.*

4. MULTIPLY THE SURVIVAL RATE FOR EACH FUTURE YEAR BY THE ENROLLMENT FOR THE NEXT LOWER CLASS FOR THE PRECEDING YEAR. *In the example above, the enrollment for the 1975 8th grade class would be obtained by multiplying that year's survival rate (.95) by the preceding year's 7th grade enrollment (1000), the result is 950 students. Work this through one year at a time. This completes the projection.*

Grades	1972	1973	1974	1975	1976	1977	1978	1979	1980	1981
K							XXXX	XXXX	XXXX	XXXX
1										
2										
3										
4										
5										
6										
7										
8										
9										
10										
11										
12										

TAB TWO
STUDENT INTEREST

INTRODUCTION

TAB TWO uses the results of student interest surveys and tests together with the actual enrollments in programs to project future enrollment in vocational programs. The comparison between interest and actual enrollment is used to factor current student interest in programs. Where interest is being measured for a new or planned program, the average for existing programs may be used.

DEFINITIONS

1. *Average Past Interest Test* - the average number of students who expressed interest in a particular occupation. If this is done for three years, the average of the three years would be the test class
2. *Actual Average Test Class Enrollment* - the actual enrollment in each vocational program (corresponding to the occupation in which the student expressed interest) of the test class. Thus if a class of eigth graders were tested in 1972, this enrollment would be the enrollment of that same class in eleventh grade vocational programs in 1975.
3. *Attrition Rate* - the percentage decrease between the expressed interest and the actual interest indicated by program enrollment. This should be used only where enrollment has been restricted by student interest. Where other restrictions (such as space available) have been applied, used an attrition rate of 1.00 (no attrition)

DATA REQUIRED

1. CURRENT STUDENT INTEREST SURVEYS OR TESTS.

2. PAST STUDENT INTEREST SURVEYS OR TESTS. *This should be for a three-year period where possible. Test occupation names should be matched to program names.*

3. ACTUAL ENROLLMENT FIGURES BY PROGRAM. *This must be for the same students that were tested for the data for item two above.*

NOTE:

Where three-year periods are called for and the data are not available, shorter periods may be used, bearing in mind that any single year may have fluctuations which are not representative of general trends in enrollment. This will decrease the reliability of your projections. If shorter periods are used, the length of the period (e.g. two years) should be consistent throughout.

PROCESSING STEPS

1. PLACE THE PROGRAM NAMES IN COLUMN ONE.

2. AVERAGE THE STUDENT INTEREST EXPRESSED IN PAST INTEREST SURVEYS. *This should be over a three-year period, where possible.* PLACE THE RESULT IN COLUMN TWO.

3. AVERAGE THE ACTUAL TEST CLASS ENROLLMENT FOR THE SAME TEST CLASSES. PLACE THE RESULT IN COLUMN THREE. *The test class enrollments are for the same three-year period as the interest surveys used in step two.*

4. DIVIDE COLUMN THREE BY COLUMN TWO. PLACE THE RESULT IN COLUMN FOUR. *This is the Attrition rate. If no attrition rate is to be used, place a value of 1.00 in this column.*

5. PLACE THE CURRENT INTEREST TEST FIGURES IN COLUMN FIVE.

6. MULTIPLY COLUMN FOUR BY COLUMN FIVE. *This is the projected student interest. Where no attrition rate is used, this will be the same as column five.*

PLANNING YEAR

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Col. 1 Program	Col. 2 Average Past Interest Test	Col. 3 Average Test Class Enrollment	Col. 4 Attrition Rate	Col. 5 Current Interest Test	Col. 6 Projected Student Interest

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TAB THREE
LABOR MARKET DEMAND

INTRODUCTION

This tab is intended to provide the framework for calculating the number of graduates of each program that may reasonably be expected to find jobs using the skill they were trained in. This is sometimes referred to as "labor market demand" or "job demand." However, this tab refers to that portion of the labor market which is accessible to entry-level or inexperienced applicants. As many jobs listed under each occupational category have skill or experience requirements which place those jobs out of reach for the program graduate, the estimates used in this tab will not correspond to listings provided by state or federal agencies for the same job categories. They are based instead on combining those figures with the results of past placement efforts in the district.

In some areas it is possible that there will not be adequate state, regional, or local projections for job demand by occupation. Where this occurs and some data are desired for future job demand, a method is suggested using national data supplied by the Census and the Bureau of Labor Statistics. This will provide a projection of local

employment based on national averages and 1970 Census employment data for the local area. This method is contained as an appendix following the TAB THREE data-entry sheet.

DEFINITIONS

1. *Skill-Related Placement* - Placement by the Local Education Agency or related agency in. a) a job related to the skill learned by the graduate in the program, or, b) advance training or higher education in the same skill that the graduate studies in the program.
2. *Placement Data* - Historic follow-up surveys which indicate which students have received jobs in their field of training or have gone on to further their education in that field.
3. *Occupational Demand Data* - Projections or surveys which indicate the number of jobs offered by specific occupation. For national average projections, see The Bureau of Labor Statistics Bulletin 1737, Tomorrow's Manpower Needs, appendix D.
4. *Placement Factor* - The rate or percentage of jobs in a given occupation that has been filled in the past by vocational graduates. This is normally a fairly small percent since many of the jobs under occupational demand data are not entry-level positions.
5. *Direct Placement Opportunity* - Some form of commitment (such as expressed interest in an apprenticeship program) by an employer to accept a vocational program graduate.
6. *Planning Area* - The area which: (1) is the service area for the vocational programs, or (2) the labor market area, or area within which program graduates are expected to look for jobs.

DATA REQUIRED

1. PLACEMENT DATA FOR EACH PROGRAM. *This should include the number of graduates by prograr who have obtained jobs in that skill area. Where possible, three years of data should be used to eliminate annual fluctuations.*

2. OCCUPATIONAL DEMAND DATA FOR EACH OCCUPATION *(corresponding to each program). This may include both general employment data (such as regional manpower surveys) and specific employer surveys. General employment projections (data not related to direct placement opportunities) should include estimates both for the planning year and for every year that placement data is available.*

3. IF THE ALTERNATE TO METHOD TWO IS USED, THE FOLLOWING ARE REQUIRED:
   a) *Bureau of Labor Statistics Bulletin 1737, Tomorrow's Manpower Needs, vol. IV, appendix D. This lists national employment projections as well as the national industry-occupational matrix.*
   b) *1970 Census Tract Reports, detailed occupational listings. For Standard Metropolitan Statistical Areas, this is table 171. For non - SMSA tracts, this data may need to be recovered from the fourth count census tapes.*

PROCESSING STEPS

1. ENTER PROGRAM NAMES IN COLUMN ONE.

2. ENTER THE AVERAGE OF THE LAST THREE YEARS PLACEMENTS FOR THAT PROGRAM IN COLUMN TWO.

3. ENTER THE AVERAGE OF THE LAST THREE YEARS JOB DEMAND DATA FOR THAT PROGRAM IN COLUMN THREE.

4. DIVIDE COLUMN TWO BY COLUMN THREE AND PLACE THE RESULT IN COLUMN FOUR. *This is the Placement Factor.*

5. PLACE THE PROJECTED JOB DEMAND IN COLUMN FIVE.

6. MULTIPLY COLUMN FOUR BY COLUMN FIVE. *This is the projected skill-related placement.*

7. PLACE THE DIRECT PLACEMENT OPPORTUNITIES IN COLUMN SIX. *This figure is used directly; there are no calculations necessary.*

If both factored placement and direct placement opportunities are used for the same program, the total skill-related placement is the sum of two.

This completes Method Two. If no further changes or adjustments are to be made, these projections may be transferred to Step Three of the Procedures Summary.

PLANNING YEAR

Col. 1 Program	Col. 2 Past Average Placements	Col. 3 Past Average Job Demand	Col. 4 Placement Factor	Col. 5 Projected Job Demand	Col. 6 Prejected Skill-Related Placement

METHOD TWO - ALTERNATE

The following method will provide data to be inserted in place of local data in columns three and five on the data - entry sheet.

PROCESSING STEPS

1) ASCERTAIN ALL CENSUS TRACTS IN YOUR PLANNING AREA.

2) TOTAL THE NUMBER OF WORKERS IN EACH OCCUPATION THAT CORRESPONDS TO YOUR VOCATIONAL PROGRAMS (*from the Detailed Occupational Listings in the 1970 Census Tract Reports*).

3) ENTER THE TOTAL OF ALL TRACTS FOR EACH OCCUPATION IN COLUMN THREE.

4) *Bureau of Labor Statistics Bulletin 1737 contains total national employment by occupation for 1970 and 1980.* TAKE THE 1970-80 PERCENT INCREASE FOR EACH OCCUPATION AND DIVIDE BY TEN. *This is the average annual increase in employment for that occupation.*

5) MULTIPLY THE AVERAGE ANNUAL INCREASE BY THE NUMBER OF YEARS BETWEEN 1970 AND THE PLANNING YEAR. *Example: if the planning year is 1977 and the average annual increase in 10%, this would be a 70% total increase.* CONVERT THIS TO A DECIMAL *(.70).*

6) MULTIPLY COLUMN THREE BY 1 + THE TOTAL INCREASE. *Place the result in column five.*

7) CONTINUE WITH STEP SIX OF THE TAB THREE PROCESSING STEPS.

TAB FOUR
PROGRAM ENROLLMENT

INTRODUCTION

TAB FOUR is designed to allow the administrator to use the results of the previous tabs to create a single projection for the enrollment for each program or course of study. The tab allows the administrator to weight the use of labor market or student interest projections according to the district's preference. Therefore it is important to realize that the end projection of TAB FOUR may not match the figure of either of the previous tabs.

The "weight" or value used to establish the optimum or target class size is referred to as the Desirable Skill-Related Placement Ratio. It is important to realize that this is not a mandated or technically-derived figure, but a value which states the importance that the district places on job demand as a factor in enrollment. The result of this is then compared to projected student interest to determine which programs might best be emphasized via counseling or other means.

DEFINITIONS

1. *Desirable Student-Interest Ratio* - A decimal figure indicating the amount of student interest desired by the district for each training station or training position available. Example: if you prefer to have two interested students for each position available in a welding program, then the Desirable Student-Interest Ratio for welding would be 2.00.

2. *Desirable Skill-Related Placement Ratio* - In most programs, a number of students participate who do not wish employment in that field, but simply desire the learning experience. This ratio indicates the percent of each class that you expect to seek employment in that field directly upon graduation, and whom you expect to assist with placement. Example: if your goal is to place 40 percent of the graduates in jobs related to that skill, the Desirable Skill-Related Placement Ratio would be .40. As with the desirable student-interest ratio, this number is expressed as a decimal.

3. *Optimum Program size* - the target size of each program in the projected year, based on projected job demand and the desirable skill-related placement ratio.

METHOD THREE DATA REQUIRED

1. RESULTS OF TABS TWO AND THREE.
2. LOCAL JUDGEMENTS ON DESIRABLE RATIO OF STUDENT INTEREST TO PROGRAM OPENINGS.
3. LOCAL JUDGEMENTS ON DESIRABLE RATIO OF PROGRAM OPENINGS TO PROJECTED SKILL-RELATED JOB OPENINGS.

PROCESSING STEPS

1. INDICATE THE PLANNING YEAR AT THE TOP OF EACH DATA ENTRY SHEET.
2. PLACE PROGRAM NAMES IN COLUMN ONE. *(Data sheet next page)*
3. PLACE THE RESULTS OF TAB THREE IN COLUMN TWO.
4. PLACE THE DESIRABLE SKILL-RELATED PLACEMENT RATIO IN COLUMN THREE.
5. DIVIDE COLUMN TWO BY COLUMN THREE. PLACE THIS FIGURE IN COLUMN FOUR. *This is the optimum program size.*
6. PLACE THE DESIRABLE STUDENT INTEREST RATIO IN COLUMN FIVE.
7. MULTIPLY COLUMN FOUR BY COLUMN FIVE. PLACE THIS IN COLUMN SIX. *This indicates desirable student interest based on the optimum program size.*
8. PLACE THE RESULTS OF TAB TWO (COLUMN SIX) IN COLUMN SEVEN.
9. SUBTRACT COLUMN SEVEN FROM COLUMN SIX. PLACE THE RESULT IN COLUMN EIGHT.
10. TAKE THE LOWER (SMALLER) FIGURES FROM COLUMN FOUR AND COLUMN SEVEN AND PLACE IT IN COLUMN NINE. *This is the Projected Program Enrollment. Example: if the figure in column four is 60 students and the figure in column seven is 80 students, place the 60 students from column four in column nine. This completes TAB FOUR.*

Column eight is adjustment in student interest. A POSITIVE *number in column eight indicates* ENCOURAGE STUDENT INTEREST. *A* NEGATIVE *number in column eight indicates* DIVERT STUDENT INTEREST *to other programs.*

PLANNING YEAR

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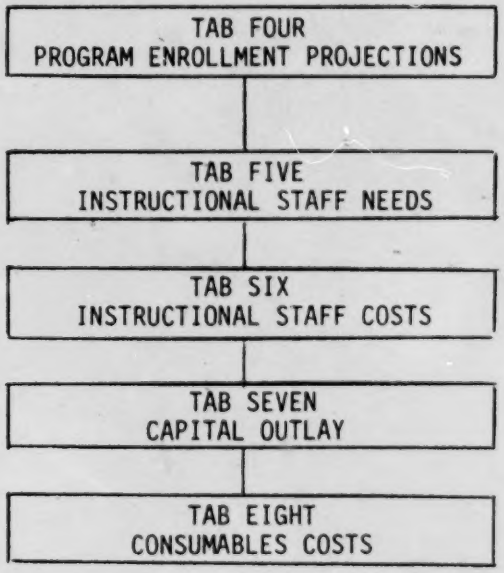
Col. 1 Program	Col. 2 (Tab 3)	Col. 3 Desirable Placement Ratios	Col. 4 Optimum Program Size	Col. 5 Student Interest Ratio	Col. 6 Desirable Student Interest	Col. 7 (Tab 2)	Col. 8 Adjust Student Interest	Col. 9 Projected Program Size

PART TWO

Part Two of the Policy Information System takes the set of program projections developed in Part One and uses these to estimate the staff, facilities and other costs associated with each program at the projected enrollment. These estimates are based on the projected enrollments and the current operating costs of each program. Where current data are not available for a program, it may be necessary to estimate costs, staff and facilities requirements from either similar programs or from statewide or other data.



TAB FIVE
PROGRAM TEACHING STAFF REQUIREMENTS

INTRODUCTION

TAB FIVE uses the programs arrived at in Part One together with existing average class sizes and staff requirements to arrive at a projected number of teaching personnel required. The method used is designed to provide an estimate of acceptable accuracy while still retaining a relatively simple format and procedure.

DEFINITIONS

1. *Total course enrollment* - the total number of students (present or future) enrolled for each program listed.

2. *Average class size* - Average, expected or mandated number of students in each class or section.

3. *Current Teachers Available* - The number of current teachers qualified for each program that are expected to be available in the planning year.

4. *Teachers Required* - The number of teachers that will need to be added to teach each program at the target enrollment level.

NOTE: teaching staff requirements are expressed in terms of full - time equivalents (FTE). Since staff assignments may be split between programs, this number may be a decimal fraction.
Example: welding may require 1.6 FTE staff members.

DATA REQUIRED

1. RESULTS OF TAB FOUR.
2. AVERAGE OR MANDATED SIZE OF EACH PROGRAM CLASS OR SECTION.
3. CURRENT TEACHING STAFF ASSIGNMENTS BY PROGRAM.
4. CURRENT YEARS TEACHERS AVAILABLE.

PROCESSING STEPS

1. ENTER PROGRAMS IN COLUMN ONE. *(Data sheet next page)*
2. ENTER PROJECTED COURSE ENROLLMENT *(from TAB FOUR)* IN COLUMN TWO.
3. ENTER AVERAGE CLASS SIZE IN COLUMN THREE.
4. DIVIDE COLUMN TWO BY COLUMN THREE AND PLACE THE RESULT IN COLUMN FOUR. *This is the teaching staff required.*
5. ENTER CURRENT TEACHING STAFF AVAILABLE FOR EACH PROGRAM IN COLUMN FIVE.
6. SUBTRACT COLUMN FIVE FROM COLUMN FOUR. PLACE THE RESULT IN COLUMN SIX. *This is teaching staff adjustment. NOTE: in the case of decreasing program size,* THIS MAY BE A NEGATIVE NUMBER. *This indicates the number of teaching staff to be released from that program only, not from the total teaching staff.*

PLANNING YEAR

Col. 1 Program	Col. 2 Projected Course Enrollment	Col. 3 Class Size	Col. 4 Teachers Required	Col. 5 Teachers Available	Col. 6 Personnel Adjustment

TAB SIX
INSTRUCTIONAL STAFF COSTS

INTRODUCTION

TAB SIX uses the enrollment projections from Part One and the teaching personnel requirements from TAB FIVE to project the instructional staff costs by program. The method relies on using current estimates of salaries and fringe benefits with average anticipated increases to the projection years.

DEFINITIONS

1. *Per member teaching staff cost* - The average total cost of one teaching staff member, including:

   1) basic salary

   2) average standard district fringe benefits

   3) average for other reimbursable expenses such as travel, overtime.

   This figure should be expressed as a single dollar amoung.

   Example:

basic salary	10,500
average fringe package	1,500
average other	250
per member staff cost	12,250

NOTE: two staff costs are required: one for continuing staff, one for new staff.

2. *Inflation factor* - The inflation factor is the rate of increase in per member staff cost and is calculated in the same way as a compound interest formula. Thus: if the projected inflation rate is 10%, the inflation factor is $(1+.10)^n$, where n is the number of years between the present year and the planning year.

   Example: the inflation rate is 10% and planning year is three years in the future.

   Inflation factor = $(1+.10)^3 = 1.331$

DATA REQUIRED

1. CURRENT FULL-TIME EQUIVALENT TEACHING STAFF REQUIREMENT BY PROGRAM.
2. TEACHING STAFF ESTIMATE FROM TAB FIVE.
3. AVERAGE PER MEMBER TEACHING STAFF COST, INCLUDING FRINGE BENEFITS AND OTHER EXPENSES.
4. PROJECTED YEARLY INCREASE IN SALARIES AND FRINGE BENEFITS (INFLATION RATE).

PROCESSING STEPS

1. ENTER PROGRAM NAMES IN COLUMN ONE. *(Data sheet next page)*
2. ENTER TOTAL PROJECTED STAFF REQUIREMENT IN COLUMN TWO. *This is a check. Columns three and eight together should equal this number.*
3. ENTER THE NUMBER OF CONTINUING STAFF IN COLUMN THREE.
4. ENTER THE CURRENT CONTINUING PER MEMBER STAFF COST IN COLUMN FOUR.
5. MULTIPLY COLUMN THREE BY COLUMN FOUR. PLACE THE RESULT IN COLUMN FIVE. *This is the total continuing staff cost.*
6. ENTER THE INFLATION FACTOR IN COLUMN SIX.
7. MULTIPLY COLUMN FIVE BY COLUMN SIX. PLACE THE RESULT IN COLUMN SEVEN. *This is the total projected continuing staff cost.*
8. ENTER THE TOTAL NEW STAFF IN COLUMN EIGHT. *This may be a negative number.*
9. ENTER THE NEW PER MEMBER STAFF COST IN COLUMN NINE. *NOTE: This is NOT the same cost as column four.*
10. MULTIPLY COLUMN EIGHT BY COLUMN NINE. PLACE THE RESULT IN COLUMN TEN. *This is the total new teaching staff cost.*
11. MULTIPLY COLUMN TEN BY COLUMN SIX. PLACE THE RESULT IN COLUMN ELEVEN. *This is the total projected new staff cost. This may be a negative number.*
12. ADD COLUMN SEVEN AND COLUMN ELEVEN. PLACE THE RESULT IN COLUMN TWELVE. *This is the total projected teaching staff cost.*

THIS COMPLETES TAB SIX.

NOTE ON TOTALS: *columns eight and eleven of TAB SIX may be negative numbers in the case of program reductions. When programs are totalled, negative numbers should be counted as ZERO, not the negative value. Failure to do this will reduce the apparent projected cost below the actual cost. If no further changes or adjustments are to be made, these projections may be moved to Step Six of the Procedures Summary.*

PLANNING YEAR

Col. 1 Program	Col. 2 Projected Staff (Tab 5, Col. 4)	Col. 3 Continuing Staff (Tab 5, Col. 5)	Col. 4 Continuing Per Member Cost	Col. 5 Total Estimated Continuing Cost	Col. 6 Inflation Factor

PLANNING YEAR

Col. 7 Total Projected Continuing Staff Cost	Col. 8 Total New Staff (Tab 5, Col. 6)	Col. 9 New Per Member Cost	Col. 10 Total New Staff Cost	Col. 11 Projected Total New Staff Cost	Col. 12 Projected Total Staff Cost

TAB SEVEN
PROGRAM CAPITAL COSTS

INTRODUCTION

The term "capital outlay" refers to large program purchases for items which are not used up in the course of the year. Exact definitions of capital vary; some include a minimum amount such as $20,000, while others specify a minimum number of years the purchase must last. While there is no one definition, it is essential that the administrator define capital outlay and be consistent in all programs.

TAB SEVEN projects the capital costs by program based on present estimates of capital costs for those programs plus a fixed inflation factor. The result of the tab is a projection of costs for the entire planning period (up to five years). By indicating the year in which each expenditure is anticipated, a series of completed tabs should also indicate general trends in capital expenditures.

DEFINITIONS

1. *Training station* - the number of physical positions alloted for each program, based on: (1) the number of students in each program, and (2) the number of students using each station.
   Example: if a program has 40 students and two students use each training position (e.g. one morning and one afternoons) then the program has 20 training stations.

2. *per - station estimated capital outlay* - Although capital expenditures are likely to be "lumpy" and not easily calculated on a per-station basis, some measure is needed to relate section size (number of training stations) to program cost. For some programs (those requiring single large pieces of equipment) this may be a very rough estimate. This, however, does not severely limit the validity of the process.

3. *Inflation factor* - the inflation factor for TAB SEVEN is calculated in exactly the same manner as that for TAB SIX. The only difference is that the cost increase used is that for capital expenditures instead of teaching staff cost.

DATA REQUIRED

1. TOTAL NUMBER OF TRAINING STATIONS FOR EACH PROGRAM, BASED ON THE PROJECTED NUMBER OF STUDENTS FROM TAB FOUR.
2. ESTIMATED PER-STATION CAPITAL OUTLAY FOR EACH PROGRAM.
3. AVERAGE ESTIMATED YEARLY INFLATION RATE FOR CAPITAL EXPENDITURES.

PROCESSING STEPS

1. ENTER PROGRAMS IN COLUMN ONE.
2. ENTER THE NUMBER OF TRAINING STATIONS FOR EACH PROGRAM IN COLUMN TWO.
3. ENTER THE ESTIMATED PER-STATION OUTLAY FOR EACH PROGRAM IN COLUMN THREE.
4. MULTIPLY COLUMN TWO BY COLUMN THREE. PLACE THE RESULT IN COLUMN FOUR. *This is the Total estimated capital outlay.*
5. ENTER THE INFLATION FACTOR IN COLUMN FIVE.
6. MULTIPLY COLUMN FOUR BY COLUMN FIVE. PLACE THE RESULT IN COLUMN SIX. *This is the total projected capital outlay for each program.*

This completes method two. If no further changes or adjustments are to be made, these projections may be transferred to Step Seven of the Procedures Summary.

PLANNING YEAR

Col. 1 Program	Col. 2 Number of Training Stations	Col. 3 Per-Station Est. Cap. Outlay	Col. 4 Total Estimated Cap. Outlay	Col. 5 Inflation Factor	Col. 6 Total Projected Cap. Outlay

TAB EIGHT
PROGRAM CONSUMABLES COSTS

INTRODUCTION

TAB EIGHT projects the cost of consumables for each program based on the present cost for that or an equivalent program. A cost increase factor based on the cost increases of previous years is then applied to the current figure to obtain an estimate of future costs. Note that this is based on an average per-training-station cost, multiplied by the number of training stations arrived at in previous tables.

DEFINITIONS

1. *Training station* - the same figure as used in TAB SEVEN.
2. *Per-station estimated consumables cost* - As a category, "consumables" includes all expenditures for a program not included under instructional staff cost or capital expenditures. Typically, this will include paper, project construction supplies and any tools not counted under capital expenditures. This cost should be estimated for each training station (i.e. an average value for each station). As with capital expenditures, there may be some programs where it is difficult to allot costs by training station. In these cases a rough estimate is sufficient.
3. *Inflation Factor* - The inflation factor is calculated in exactly the same manner as in TABS SIX and SEVEN. The only difference is that the inflation rate used is that for consumables rather than instruction or capital cost. This does not need to be calculated separately for each program; a single estimate is sufficient.

DATA REQUIRED

1. NUMBER OF TRAINING STATIONS PER PROGRAM (FROM TAB SEVEN)
2. ESTIMATED PER-STATION CONSUMABLES COST FOR EACH PROGRAM.
3. AVERAGE ANNUAL CONSUMABLES COST INCREASE FOR EACH PROGRAM (INFLATION RATE).

PROCESSING STEPS

1. ENTER PROGRAMS IN COLUMN ONE. *(Data sheet next page)*
2. ENTER THE NUMBER OF TRAINING STATIONS (FROM TAB SEVEN) IN COLUMN TWO.
3. ENTER THE ESTIMATED PER-STATION CONSUMABLES COST FOR EACH PROGRAM IN COLUMN THREE.
4. MULTIPLY COLUMN TWO BY COLUMN THREE. PLACE THE RESULT IN COLUMN FOUR. *This is the total estimated consumables cost for each program.*
5. ENTER THE INFLATION FACTOR IN COLUMN FIVE.
6. MULTIPLY COLUMN FOUR BY COLUMN FIVE. PLACE THE RESULT IN COLUMN SIX. *This is the total projected consumables cost for each program.*

This completes method two. If no further changes or adjustments are to be made, these projections may be transferred to Step Eight of the Procedures Summary.

PLANNING YEAR

Col. 1 Program	Col. 2 Number of Training Stations	Col. 3 Estimated Per Station Consumables	Col. 4 Total Estimated Consumables	Col. 5 Inflation Factor	Col. 6 Total Projected Consumables Cost

PROGRAM SUMMARY

When each TAB is completed and the results placed in the PROGRAM SUMMARY data sheet, the model presents a unified program projection for each planning year. By summing the columns the total vocational program can be compared against the existing program and against various goals and priorities. This is a preliminary planning model in the sense that it does not present a final outcome; the result may be altered and the model re-run where either basic data or expectations change. The result should be a balanced and realistic program which can form the basis for valid budget requests and resource allocations. In this way, the model should express unique local needs and become an integral part of the local administrative process, rather than a reporting tool to higher agencies.

PLANNING YEAR

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Program	Students: Tab One	Students: Tab Two	Students: Tab Three	Students: Tab Four	Dollars: Tab Five	Dollars: Tab Six	Dollars: Tab Seven	Dollars: Tab Eight	

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